

NOTES.

LORD AVEBURY has been elected a corresponding member for the section of anatomy and zoology of the Paris Academy of Sciences.

WE regret to see the announcement of the death, on November 24, at sixty-four years of age, of Prof. Angelo Mosso, professor of physiology in the University of Turin.

WE learn from the *Revue scientifique* that the new astronomical observatory in the gardens of the Vatican was opened on November 17.

THE *Terra Nova*, with the members of Captain Scott's Antarctic expedition on board, left Port Chalmers on November 29 on her way south.

PROF. R. A. SAMPSON, F.R.S., professor of mathematics and astronomy in the University of Durham, has been appointed Astronomer Royal for Scotland and professor of practical astronomy in the University of Edinburgh, in succession to Mr. F. W. Dyson, F.R.S.

ON account of the General Election, the annual dinner of the Institution of Electrical Engineers (originally fixed for December 6) has been postponed to Thursday, February 2, 1911.

THE French Society of Biology has, says the *Revue scientifique*, awarded the Godard prize to Mlle. Anna Drzewina. The prize is awarded every other year for the best biological work.

THE Emperor Francis Joseph has conferred the Austrian great gold medal of science and literature upon Mr. E. Torday, the leader of the scientific expedition sent out by the British Museum to study the native tribes in the Kasai basin of the Congo.

THE *Scientific American* announces that Prof. Frank H. Bigelow, who recently resigned from the United States Weather Bureau, has joined the staff of the Argentine Meteorological Office.

WE learn from the *Times* that, owing to ill-health, Mr. Goodfellow, the leader of the British expedition to Dutch New Guinea, has been compelled to return home, and that the committee of the British Ornithologists' Union has appointed in his place Captain C. G. Rawling, who represents the Royal Geographical Society on the expedition.

THE death is announced, at fifty-three years of age, of Mr. F. Howard Collins, the author of "An Epitome of the Synthetic Philosophy of Herbert Spencer" and "Author and Printer: a Guide to Authors, Editors, Printers, Correctors of the Press, Compositors, and Typists." Mr. Collins was awarded a medal at the Franco-British Exhibition of 1908 for his "Simplified Mariner's Compass Card."

DR. HENRY WURTZ died recently at Brooklyn in his eighty-third year. At the beginning of the Civil War he was chemical examiner in the U.S. Patent Office, as well as professor of chemistry in the National Medical College at Washington. He was the author of numerous scientific treatises, and for some time editor of the New York *Gas Light Journal*. The mineral wurtzite was named after him, and he was also the discoverer of the minerals huntite and animikite.

A RECENT issue of *Science* gives an interesting account of the development of the Rockefeller Institute for Medical Research. The establishment of the institute is the culmination of a series of gifts, each one based on a

demonstration of actual needs and on evidence of a wise use of previously available funds. The initial gift was made in 1901, when 40,000*l.* was provided to be used in a limited number of years in the form of grants to support research. In 1902 a donation of 200,000*l.* was received to cover the erection of a laboratory and the cost of current expenses for a few years. When the plans were being prepared for the future organisation of the institute, the necessity for having a hospital under the control of the institute was felt very much. Mr. Rockefeller decided to erect a hospital, and provided a further 124,000*l.* for the purpose. In 1907, while the plans of the hospital were being prepared, Mr. Rockefeller gave 520,000*l.* to be used solely for the endowment of the institute. This year the trustees of the institute assumed possession of 764,000*l.*, the generous patron's latest gift. Up to the present time the work of the institute has been confined to laboratory studies of physiological and chemical aspects of diseases and to surgical and other problems that could be studied on animals. The need for the direct study of diseases under conditions that would permit accurate observations with the aid of comprehensive equipment led to the foundation of the hospital. Instead of being compelled to treat almost every kind of disease, as in a general hospital, the physicians will concentrate on a few ailments. The hospital will have physiological, chemical and biological laboratories to supplement those in the institute. The laboratories of the hospital will be devoted to investigations bearing on the diseases under treatment, while the laboratories of the institute will continue their investigations as conducted at present.

AT the last meeting of the Cotteswold Field Club Mr. L. Richardson pointed out that the so-called "stone circle" on Shurdington Hill, near Cheltenham, was really of natural origin. A slipping forward of the Upper Lias Clay was accompanied by undermining of the basal Inferior Oolite limestone, and some blocks rolling down the slope had assumed the appearance of a stone circle, which is so recorded in the Ordnance Survey. The site being under the cold shadow of a northward-facing cliff is not the position likely to have been selected for an interment.

AN interesting part of the work of the Brooklyn Institute of Arts and Sciences is the arrangement of a special museum and library for the use of children, of which an account is given in the report for 1909. The institution contains rooms devoted to exhibits of historical interest, geography, birds, insects, and similar objects. The library is provided with special literature on these subjects suitable to the needs of its students, and interest in the study of nature is excited by the issue of picture bulletins and the exhibit throughout the year of specimens of trees in bud, flowers, and fruits. The museum is said to be widely used by children in elementary schools, and it offers facilities for training of teachers, who are thus enabled to collect materials for study by their pupils. The practical system thus organised deserves the attention of school authorities in this country.

CAPTAIN A. J. N. TREMEARNE is busily engaged in unloading the stores of ethnological material which he has brought from Hausaland. He contributes to a recent number of the Journal of the Royal Society of Arts a series of folk-tales dealing with the relations of Hausa parents and children, which from these specimens seem to be far from satisfactory, these tales being devoted to the themes of unnatural parents and disobedient children. One is some-

what of the Sampson-Delilah type, in which a strong man loses his power through love of a woman. She, however, atones for this by allowing herself to be buried with his corpse, by which means she and her lover revive, and the grave becomes an iron house in which they live happily ever after.

So much discussion has arisen on the subject of eoliths that it is refreshing to find the case reviewed with good sense, knowledge of the conditions under which natural cleavage of flint may simulate the work of primitive man, and the provision of such a complete series of illustrations in the paper contributed to vol. xxi. of *L'Anthropologie* by L'Abbe H. Breuil, entitled "Sur la présence d'eolithes à la base de l'Eocene Parisien." We can only direct attention to this admirable essay, a study of which may be commended to certain enthusiasts on this side of the Channel. The same remarks apply to another contribution to the same magazine by M. G. H. Luquet, entitled "Sur les caractères des figures humaines dans l'art paleolithique," where the styles of this primitive art are illustrated by numerous well-selected sketches. The author is, on the whole, inclined to question the theory that a magical intention underlies the treatment of the sexual characteristics which are so prominent in the cave drawings.

DR. FRIEDERICI, in describing the distribution of the sling in America (*Globus*, xciii., p. 287), finds that it occurs practically everywhere if stones can be found. He seems to have misrepresented Peschel, who does not state (at all events in the English edition) that "slings cannot be used in tropical virgin forest," but that they "could not be used in the forest country of the Amazon," because, as he had previously stated, "no shingle is to be found." Slings could only be employed on the narrow paths, in clearings, or by rivers, but in such a country the bow is better than the sling; the spear-thrower is impracticable, as it requires so much elbow-room. He comes to the fairly obvious conclusion that the sling has been independently invented in various parts of the world.

IN the Bulletin of the Johns Hopkins Hospital for November (xxi., No. 236) Dr. Harvey Cushing surveys the present status of neurological surgery, and shows how much has been accomplished during the last few years. Incidentally, Dr. Cushing deals with the value of experimentation on the lower animals. He says:—"There is no question but that a training for neurological surgery must come through laboratory experiences, and just as we are indebted to experimentation on the lower animals for almost every fact of importance which has made for the advance of this particular department, so also must we call upon them for the mere practice of hand essential to success in their clinical applications. Those who oppose the employment of animals for such purposes would leave us the only alternative of subjecting our fellow-man, as a lesser creature, to our first crude manipulations."

EVER since it was first discovered that sleeping sickness in Uganda was disseminated by the dusky tsetse-fly, *Glossina palpalis*, it has been a moot point whether or not other species of tsetse-flies are capable of transmitting *Trypanosoma gambiense*. The question is one of the greatest practical importance, since upon the answer it depends whether sleeping sickness is confined necessarily to those regions where *G. palpalis* is found, or whether it may spread over a vastly wider extent of the African continent into regions in which other species of tsetses occur. Prof. Kleine in German East Africa carried out

some experiments with *G. morsitans* which led him to the conclusion that *T. gambiense* was unable to go through its development in, or be transmitted by, this species of tsetse (*vide* Sleeping Sickness Bureau Bulletin, No. 11, Appendix, and No. 18, p. 197). Recently, however, several cases of sleeping sickness have been reported from north-eastern Rhodesia and Nyasaland, from regions far south of the most southerly point at which *G. palpalis* is known to occur. It is believed that in these cases the transmitting agent is *G. morsitans*, and, if so, it is an extremely serious matter. It is to be hoped that the question will be thoroughly investigated without delay.

THE seventy-fourth Bulletin of the United States National Museum consists of an account of some West Indian Echinoids, by Mr. Theodor Mortensen, of the Zoological Museum, University of Copenhagen. The memoir is a short one, extending only to thirty-one pages, but it contains a revised list of North American, Atlantic, and West Indian Echinoids, amounting to eighty-two species, which should be of great value to the systematist. The work is illustrated by seventeen plates of remarkable beauty.

AS we learn from a recently published guide-book, by the curator, the exhibited series of British birds in the Hull Municipal Museum is of unusual extent and interest. It includes, for instance, a large collection made by the late Sir Henry Boynton, a second formed by the late Mr. H. J. R. Pease, and a third known as the Riley-Fortune collection. Two at least of these collections were found to supplement one another, and all three are rich in Yorkshire specimens. The guide is illustrated by reproductions from photographs of some of the groups.

BIRD-MARKING is being carried on as energetically in the United States as in Europe, and, according to an article by Mr. L. J. Cole in the *Auk* for April, with equally satisfactory results. Open aluminium bands are now employed in place of closed rings, but these, owing to their hardness, are not altogether suitable for the purpose. Up to December 1, 1909, there were recovered 911 banded birds. Special interest attaches to a number of night-herons banded at Barnstable, Mass., of which a considerable proportion was recovered. After leaving the heronries these birds scattered in a northerly direction, this direction being largely due to the circumstance that there is no land to the south. The movement indicates, however, a tendency on the part of all young birds to disperse from the neighbourhood of the nests in which they were reared, owing to food-supplies having been rendered scarce.

THE question whether bees are capable of distinguishing different colours has been much discussed, one observer maintaining that the varied hue of Alpine flowers is for the purpose of enabling bees to remain constant to a particular species of plant, so that pollination is effected to the mutual advantage of the bees and the flowers. On the other hand it has been argued that flowers might be as green as leaves without any hindrance to pollination by insects. To test the question, Mr. J. H. Lovell conducted a series of experiments with glass slides of different colours, rendered attractive by patches of honey, to see which particular kind bees would visit, a blue slide being, for instance, offered first, then a red one placed alongside, and, finally, the positions of the two exchanged. As the result of these experiments the observer states, at the conclusion of a paper in the November number of the *American Naturalist*, that "bees easily distinguish colours, whether they are artificial (paints, dyes, &c.) or natural ('chlorophyl') colours. They are more strongly in-

fluenced by a coloured slide than by one without colour. Bees which have been accustomed to visit a certain colour tend to return to it habitually—they exhibit colour-fidelity. But this habit does not become obsessional, since they quickly learn not to discriminate between colours when this is for their advantage."

In his report on marine biology, included in the administration reports of Ceylon for 1909, Dr. A. Willey states that hopes have been entertained of rendering the southern division of the Mannar pearl-oyster fishery—more especially the so-called "Chilaw paars," which were the headquarters of the industry during the sixteenth century—once more productive. The results of recent observation tend to confirm Prof. Herdman's suggestion that most of the Mannar oysters are not bred *in situ*, but are carried by currents from the coasts of southern India—a conclusion which is of the most far-reaching importance in regard to the future of the pearl-fisheries. "Many years may elapse before anything like complete knowledge can be acquired concerning the physiology of the pearl banks. The great question which compels attention at the present juncture is that of the forced production and preservation of pearl oysters as against their natural propagation when left to themselves. It is felt that something must be done, and, from the rather misleading analogy of the edible oysters, that something can be done. And this conviction is fortified by the fact that something is being done with the same species in Japan, although it is probably a distinct local race adapted to a different environment. It still remains to be seen whether interference with the natural sequence of events will prove useful or profitable under the very special conditions that prevail in the Gulf of Mannar. It is only within the last few years that any attempt has been made to fathom the mystery by the accumulation of facts."

THE question of utilising wind power in country districts is so important that special interest attaches to the collection of statistics showing the frequency of winds of given velocities. In the *Agricultural Journal of the Cape of Good Hope* (No. 3) Dr. Sutton gives such a table for East London, and compares it with a similar table previously drawn up for Kimberley. It appears that at East London the wind is commonly too strong for the ordinary type of windmill; there is a vast amount of energy in the winds of the south-east coast of South Africa awaiting exploitation, but the mechanical difficulties appear to be great.

A NUMBER of determinations of the amount of arsenic present in soil, plants, fruits, and animals are recorded in a paper by Dr. Headen in the Proceedings of the Colorado Scientific Society, vol. ix. In the virgin soils examined no fewer than 2·5 to 5 parts per million were found, whilst the subsoils contained even more, sometimes as much as 15 parts per million. Orchard soils where arsenical sprays have long been in use may contain 10 to 28 times these quantities, and yield appreciable amounts of arsenic compounds to water. Crops grown on these soils and fruits from the trees all contained arsenic, and it was also readily detected in the urine of three persons who had eaten quantities of these fruits.

THE United States Department of Agriculture has of late been carrying out careful investigations on food and nutrition. Bulletin 227 deals with calcium, magnesium, and phosphorus in food and nutrition. It appears that a healthy man accustomed to a full, mixed diet requires for maintenance of phosphorus equilibrium about 1·5 grams of phosphorus, or nearly 3·5 grams of phosphoric acid, per

diem, and the organic combinations of phosphorus seem to be best adapted for the purpose. The calcium requirement is equivalent to about 0·7 gram of calcium oxide per diem. Reference is made to the value of milk in supplying these requirements. The work has been carried out by Prof. Sherman and Messrs. Mettler and Sinclair, of the Department of Chemistry, Columbia University, and full details are given of the analytical methods and of the metabolism experiments. Circular 102 gives a list of the bulletins, &c., dealing with the subject issued by the Department.

CAPT. M. PISCICELLI contributes a well-illustrated article on Lake Bangueolo to the October *Bollettino della Società Geografica Italiana*, in the form of a letter to the secretary, dated at Abercorn, May 1, 1910. The hydrographical conditions of this great complicated maze of water, marsh and islands are described, with notes on the natives and on the fauna of the region.

MR. ELLSWORTH HUNTINGTON continues his investigations on the lines of his fascinating "Pulse of Asia." In the September number of the Bulletin of the American Geographical Society he analyses the data collected by Mr. H. J. L. Beadnell respecting the Libyan oasis of Kharga, and claims that they indicate a succession of climatic changes during the last 2500 years that are in close agreement with the hypothetical "pulsations" of climate in eastern and central Asia during the same period.

THE Liverpool Geological Society may be congratulated on the opening number of the eleventh volume of its Proceedings, which contains a spirited address by Prof. J. W. Judd, F.R.S., on "The Triumph of Evolution: a Retrospect of Fifty Years." Prof. Judd has always brought his personal knowledge of the pioneers of geology to aid him in stimulating research in newer generations. He has systematically upheld the claims of Lyell as an original observer, and as one of the masters who paved the way for the general acceptance of evolution in the natural world. In the present address the relations of Lyell and Darwin, and the final "triumph of evolution" resulting from the work of Darwin and Wallace, are pointed out with vigour and characteristic clearness. This part of the Proceedings also contains papers that maintain the high standard set by the society in the explanation of local geological features.

THE scientific investigation of the German colonial possessions in Africa proceeds steadily, and in the *Mitteilungen aus den deutschen Schutzgebieten* results are being regularly published. The last number (Heft. 3, Band 23) contains five articles dealing with German South-West Africa. One deals especially with the Auin, a Bushman tribe of the Middle Kalahari Desert, which occupy a district in the eastern boundary of the territory on the border of Bechuanaland. Their habits and customs, weapons, modes of hunting, games, and other information relating to this small tribe, which are said to number some 3000, are described and illustrated. A map on a large scale attached to the same number shows the position to the south of Kilimanjaro which has been set aside as a reserved territory for those of the Masai tribe who are on the German side of the Anglo-German boundary line. The reserve contains some 2500 square miles, and lies to the west of the Pangani River.

THE results of the magnetic observations made at the Central Meteorological Observatory of Japan during 1907 appear, and are discussed, in part ii. of the annual report now published. The observatory is situated at an altitude

of 21 metres in long. $139^{\circ} 45' E.$, lat. $35^{\circ} 41' N.$, and was rebuilt in July, 1897, great care being taken to exclude magnetic ingredients from the materials employed. The present valuable report gives a brief description of the building and apparatus, and also describes the methods employed in registering the different variations of the magnets. A number of tables give the hourly values, for the whole year, of the three elements, with remarks as to the nature of the variations, indicating storms, &c. A "severe storm" was registered during the morning of February 10, 1907, the magnets having been agitated during the preceding three days. The principal disturbances are shown on fourteen large-scale charts given at the end of the report.

THE first part of vol. ii. of the Transactions of the Royal Society of South Africa includes a paper by Dr. A. W. Roberts on a preliminary determination of the absorption of light by the earth's atmosphere. The paper is a brief statement of a single determination of the coefficient of atmospheric absorption made on the summit of one of the hills of the Winterberg Range, of an altitude of about 4000 feet. More than 500 observations were made, and it was hoped at first that these observations would yield both the coefficient of absorption and the height of the atmosphere, but a variety of solutions confirmed Dr. Roberts in the view that a more refined series of observations would be necessary before any trustworthy value of the height of the atmosphere would emerge from the equations. Dr. Roberts obtained as a final value for the coefficient of atmospheric absorption at sea-level $0.19 m$, where m is the apparent magnitude of a star. The mean of the results obtained by Seidel, Langley, Pritchard, Muller, and Pickering is $0.21 m$. Taking $0.20 m$ as a mean result, Dr. Roberts points out that this signifies that 17 per cent. of all rays that strike the atmosphere perpendicularly are absorbed by the atmosphere. On the horizon the brightness of a star is reduced so that it shines with only about one-fortieth of its zenith brightness.

PROF. EDGAR BUCKINGHAM contributes to the Bulletin of the Bureau of Standards, vi., 3, a short note on the definition of an ideal gas, embodying a brief statement of the main principles of thermodynamics associated with the definition in question.

ON February 21, 1911, the well-known firm of publishers founded by Benedikt Gotthelf Teubner will celebrate its centenary. In this connection a catalogue has been issued of recent works published by Messrs. Teubner dealing with scientific subjects, which affords a striking example of the influence which private enterprise can bring into play in the advancement of learning. Moreover, the list only deals with a small portion of the Teubner publications, separate catalogues being issued for literary and other subjects.

IN the *Rendiconto* of the Naples Academy, 5, 6 (May and June), Dr. Paolo Rossi describes observations on the double refraction induced by strain in caoutchouc. The principal conclusions appear to be that the difference of the principal indices of refraction is proportional to the tension, that the results are pretty much the same for vulcanised and unvulcanised caoutchouc, and that when the elongation is maintained constant the double refraction maintains its proportionality to the tension, even though the latter gradually decreases.

THE action of light on plants forms the subject of a note in *La Nature* for October 20 by M. H. Rousset, dealing with some recent experiments by M. Combes. The author points out that the effects of light vary accord-

ing to the age and nature of the plant, a strong light favouring the development of large stores of reserve material, as in the tubers of the potato and in the beet, while a weaker light favours the growth of vegetative organs. The effect of light on the ova of trout is studied by Prof. Felice Supino in the *Rendiconto del R. Istituto Lombardo*, whose experiences tend to show that blue light is more favourable to the hatching and development of the ova than red.

IN the *Rassegna contemporanea* for October (a journal which, by the way, has during the past few months contained a number of well-written articles dealing with English national movements), Signor Gino Cucchetti publishes an article dealing, as the author claims, with a suggestion by the geologist, Venturino Sabatini, according to which a remedy for the disastrous effects of earthquakes in Messina and southern Italy should be sought in an efficient scheme of afforestation. It is pointed out that the cutting down of trees in such districts may frequently result in a loosening of the subsoil, which is largely argillaceous or sandy in character, thus giving rise to faults and lessening the resistance to the effects of seismic disturbances. The cutting down of woods receives further mention in an article by the deputy Giovanni Posadi dealing with the preservation of natural beauties, while an article by Signor Arnaldo Faustini dealing with changes that have occurred on the earth's surface in recent times, with special reference to the subsidence of the island of Bogoslaw, in Alaska, possesses collateral interest in the same connection.

THE report on the work of the Government Laboratories, Johannesburg, for the year 1908-9, has recently reached us. Whilst pointing to excellent services in the past, it gives evidence of the need for further inquiry into and control over the food and water supply of the district. The total population of the colony is about one and a quarter millions, including 300,000 persons of European descent; but only 158 samples of foodstuffs other than milk were examined during the year. This, as the analyst remarks, is very inadequate surveillance. As regards the water supply, that of Johannesburg was well looked after both chemically and bacteriologically; and that of Pretoria, where excellent water is obtainable, was also examined, though by bacteriological methods alone. But spasmodic attempts only have been made to control the condition of any of the other supplies of the colony by scientific means, and no proper systematic water survey has yet been made. Among other matters, it is noted that out of a total of 8526 samples examined, more than three thousand, mostly rats, were dealt with in connection with plague investigations.

THE contradictory results which have been obtained as to the effect of a magnetic field on the potential difference necessary to cause a discharge to pass between two electrodes in a rarefied gas are explained in a paper by Prof. Righi communicated to the Academy of Science at Bologna in May, and reproduced in the October number of *Le Radium*. The electrodes were about 2 square cm. in area and from 0.5 to 8 mm. apart, the gas having a pressure of a few tenths of a mm. of mercury. The difference of potential was provided by small storage cells, and the current transmitted measured by a galvanometer. The magnetic field in which the discharge tube was placed could be raised to 9000 units. Prof. Righi finds that the effect of the field, for strengths up to about 1000 units, is to diminish the required potential, but for greater strengths to increase it, and in the case of trans-

verse fields of still greater intensities again to diminish it. He considers these results point to the existence in the gas of neutral doublets, each consisting of a positively charged ion with a negative electron as satellite.

In an offprint from the *Atti del Reale Istituto Veneto* for 1909-10 Drs. R. Alpago and G. Silva discuss hourly observations of magnetic declination and dissipation of electric charge which they made at Padua on May 14-21. The magnetic observations agree with the more complete results from magnetographs in various parts of Europe in showing a small disturbance on the morning of May 19 about the time of the supposed passage of the earth through the tail of Halley's comet. But the coincidence might well be accidental, as magnetic conditions were disturbed for several days before and after. Electrical dissipation on May 19 was in no way outstanding. A very unusual feature throughout the observations is the absence of any decided difference between the rates of loss of positive and negative charges. For both the mean percentage loss observed per minute was 3·5, which is exceptionally high for the Elster and Geitel apparatus employed. There was a well-marked diurnal variation, again nearly the same for positive and negative charges. It showed a double oscillation. The two maxima, about 1·30 a.m. and 4 p.m., respectively, were not far from equal, and were more than double the principal minimum, which occurred about 8 a.m.

An illustrated catalogue of optical lanterns and accessory apparatus, and of an extensive series of lantern-slides to illustrate scientific and educational subjects, has been issued by Messrs. Reynolds and Branson, Ltd., of Leeds. Many of the slides may be hired as well as purchased. The catalogue shows that this firm has some 10,000 slides for sale or hire, and a list of 30,000 slides for sale only will be sent on application. In addition to slides illustrating most branches of science, we notice in the catalogue particulars of a very complete series of slides to illustrate school lessons in geography.

MESSRS. W. AND J. GEORGE, LTD., of Birmingham, are issuing their latest illustrated catalogue of scientific apparatus in sections, each dealing with a specific group of science subjects. We have received sections 1-4 bound in one volume and sections 5-7 in a second. Copies of the catalogue will be sent on application to teachers and lecturers in charge of laboratories, and to other purchasers of apparatus. The lists are profusely illustrated, and so arranged that reference is easy. The information provided is thoroughly practical, and will assist the teacher greatly in the choice of instruments.

MR. W. H. HARLING, Finsbury Pavement, London, is issuing in parts the fourteenth edition of his catalogue of mathematical drawing instruments and materials. Section A, forming the first part of the full list, has reached us, and gives particulars of the drawing pens, half sets of compasses, bow compasses, spring bows, and proportional, beam, and pencil compasses which are manufactured by this firm. We have also received from Mr. Harling a specimen of the set-square guide he has just produced. It is a simple contrivance in pearwood for guiding a set-square from any edge of a drawing board or sketch block. The guide should be convenient for rapid field sketch work and useful for section lining and cross-hatching. The price of the guide is 1s. 6d.

THE report of the council of the Natural History Society of Northumberland, Durham, and Newcastle-upon-Tyne for 1909-10 shows that the membership has suffered a net

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loss of eighteen during the year, having fallen to 395. The society's work, especially in connection with the maintenance of its museum, has been helped greatly by the Crawhall bequest of 6000*l.*, which has been so invested that it yields an annual income of 200*l.* Without this timely aid the position of the society would be serious, and it is difficult to see how some such exceptional source of income could have been dispensed with, for in some respects the society is not so flourishing as the council wishes to see it. An issue of the Transactions of the society has been published during the year, and the concluding part of the third volume of the new series is nearly ready. The usual series of winter lectures and summer field meetings have been held. The average attendance at the evening lectures was 85, at the children's lectures 164, and at the curator's "talks" 53.

OUR ASTRONOMICAL COLUMN.

RECENT FIREBALLS.—There was a brilliant meteor seen on Sunday, November 20, by Mr. and Mrs. Wilson, of Cheshunt, Herts, and by Mr. C. B. Pennington, of Newark. It passed over the North Sea east of Spurn Head at heights of from 73 to 33 miles. Its motion was exceedingly slow, being about 12 miles per second.

On Friday, November 25, about 7.30, a fine meteor was seen at Weston-super-Mare by Mr. J. Hicks. He was using a telescope at the moment, but a bright light caused him to look upwards, when he saw a fireball travelling in the direction from Saturn to two degrees above Altair. Near the end of its luminous flight it broke up into a string of fragments like first-magnitude stars, and went some distance farther. The same meteor was seen at Bristol travelling from between Saturn and α Arietis through the stars of Pegasus. It threw off a brilliant train of yellow sparks, and the nucleus distributed itself into a stream of particles at the end. The height of the object seems to have been from 88 to 41 miles from Portland Bill to Launceston, and its path about 93 miles at a velocity of 23 miles per second. The radiant was at about 64°+21°. Another but smaller Taurid was observed on November 25 at 6.52 at normal heights above Somerset, and it moved with great slowness, the speed being about 14 miles per second.

During the progress of the eclipse on November 16, at about 12h. 24m., a splendid meteor was observed from Ireland and Scotland. It had a long and rapid flight, and left a bright streak for several minutes. According to an observer near Glasgow, the meteor was apparently as large as the moon. The descriptions prove that this fireball was a late Leonid. It passed from over a point a few miles west of Glasgow to over the sea north of the Irish coast in a direction almost east to west. The heights were about 89 to 48 miles, and the length of path 145 miles.

SATURN'S RINGS—Circular No. 129 from the Kiel Centralstelle contains a telegram from M. Jonckheere, of the Hem Observatory, stating that, on several evenings, he has observed a nebulous degradation of the exterior edge of the Saturnian ring A.

CERULLI'S COMET (1910e) IDENTIFIED WITH FAYE'S SHORT-PERIOD COMET.—In a communication to the *Astronomische Nachrichten* (No. 4456) Prof. Pickering gives the elements, and an ephemeris, calculated by Mr. Meyer Lewy, for Cerulli's comet, and points out the probable identity of this object and Faye's periodical comet; such identity was also suggested by Prof. Berberich.

Dr. Ebell, having investigated the subject, finds that the observed place on November 12 differs from the calculated place of Faye's comet by only -4°, -4°, whilst the present apparition is the most favourable and brightest since the object was discovered by Faye, at Paris, in November, 1843; he considers the identity is assured. A later telegram Prof. Pickering gives improved elements and ephemeris by Mr. Lewy, and states that the identity with Faye's comet is confirmed.

Faye's comet has a period of 7·44 years, and was re-